

OBJECT-ORIENTED PROCESSOR DESIGN AND DESIGN
METHODOLOGIES

ABSTRACT OF THE DISCLOSURE

A distributed processing system having a host processor including a host
5 communication infrastructure (HCI) configured for communication with said host
processor; a plurality of class processors each having an associated private localized
read/write memory; and a plurality of application program interface modules each
configured to provide an interface between said host communication infrastructure
and at least one said class processor, wherein each said class processor responds to
10 selected data messages on said HCI to perform selected computations utilizing said
read/write memory. This embodiment provides an ideal architecture for fabrication
on a single chip and avoids processor and bus bottlenecks by providing distributed
processing power with local memory for each class processor.

Also provided is a method for designing a distributed processing system for
15 an application. The method includes steps of partitioning the application into
functions and data messages; configuring a host processor having a host
communication infrastructure (HCI) to pass data messages via the HCI to control
the application; configuring a plurality of class processors to compute the functions
into which the application is partitioned in response to the data messages; and
20 interconnecting the class processors to the host processor via application program
interface modules in a star configuration. Systems designed in accordance with this
method embodiment are well-suited for integration on a single chip, and can be
easily updated and modified as necessary, because changes made to a class
processor have minimal effect on the remainder of the system.